

2) If necessary, replace brushes by cutting old brush leads midway between connection and old brush. Solder new brushes to original leads.

BRUSH LENGTH & SPRING TENSION SPECIFICATIONS

Application	In. (mm)	Ozs. (g)
208 xxx	.52 (13)	40-50 (1150-1350)
211 xxx	.52 (13)	40-46 (1150-1300)
212 xxx	N/A	N/A
311 xxx	.52 (13)	40-46 (1150-1300)
312 xxx	.39 (10)	29-32 (800-900)
314 xxx	.52 (13)	40-46 (1150-1300)
317 xxx	N/A	N/A
362 xxx	.61 (15.5)	40-46 (1150-1300)

Armature

1) Check commutator-to-shaft (or core) for short circuit with 110 volt AC test lamp. Test lamp should not light (a slight glowing is okay).

2) Using an armature growler, check armature coils for short circuit between windings. Check commutator for pits, burns or rough surface.

3) If out of round exceeds .002" (.05 mm), or grooves or burned spots cannot be removed with fine crocus cloth, turn commutator. Undercut insulation between commutator bars to a maximum depth of .016" (.40 mm).

NOTE: Never use emery cloth or a file on commutator. Turn on a lathe only.

Bushings

1) Self-lubricating bushings should be replaced only when worn or damaged. Force out bushings with mandrel.

2) Clean hole and remove burrs. Before pressing new bushing in place, soak bushing in lubricant for at least 30 minutes.

Drive Assembly

Replace drive when damaged or teeth are worn. See DISASSEMBLY in this article.

Solenoid Plunger (Armature)

Plunger must move in and out of solenoid body when disconnected from pinion drive lever. If corroded, clean thoroughly before proceeding with tests.

Solenoid Pull-In Coil

Connect jumper wires between a 12 volt battery and solenoid. See Fig. 2. Armature should pull in and return when current is removed.